

CLAIMS

1. A piezoelectric transformer driving apparatus characterized in that the apparatus comprises:

a first piezoelectric transformer (1) which comprises primary electrodes (1a and 1b) and a secondary electrode (1c), and in which an output is obtained from the secondary electrode (1c) by applying an AC power supply to the primary electrodes (1a and 1b); and

a second piezoelectric transformer (2), which comprises primary electrodes (2a and 2b) and a secondary electrode (2c), and in which an output is obtained from the secondary electrode (2c) by applying an AC power supply to the primary electrodes (2a and 2b), being a piezoelectric transformer which outputs a voltage of phases reverse to phases of a voltage which the first piezoelectric transformer (1) outputs,

wherein the primary electrodes (1a and 1b) of the first piezoelectric transformer (1) and the primary electrodes (2a and 2b) of the second piezoelectric transformer (2) are connected in series to where an AC power supply is to be applied, and a load (L) is connected between the secondary electrode (1c) of the first piezoelectric transformer (1) and the secondary electrode (2c) of the second piezoelectric transformer (2).

2. A piezoelectric transformer driving apparatus characterized in that the apparatus comprises:

a first piezoelectric transformer (1) which comprises primary electrodes (1a and 1b) and a secondary electrode (1c), and in which an output is obtained from the secondary electrode (1c) by applying an AC power supply to the primary electrodes (1a and 1b); and

a second piezoelectric transformer (2), which comprises primary electrodes (2a and 2b) and a secondary electrode (2c), and in which an output is obtained from the secondary electrode (2c) by applying an AC power supply to the primary electrodes (2a and 2b), being a piezoelectric transformer in which a polarization direction in its primary electrode side is mutually reverse to a polarization direction in a primary electrode side of the first piezoelectric transformer (1), and a polarization direction in its secondary electrode side is mutually the same as a polarization direction of the first piezoelectric transformer (1),

wherein the primary electrodes (1a and 1b) of the first piezoelectric transformer (1) and the primary electrodes (2a and 2b) of the second piezoelectric transformer (2) are connected in series to where an AC power supply is to be applied, and a load (L) is connected between the secondary

electrode (1c) of the first piezoelectric transformer (1) and the secondary electrode (2c) of the second piezoelectric transformer (2).

3. A piezoelectric transformer driving apparatus characterized in that the apparatus comprises:

a first piezoelectric transformer (1) which comprises primary electrodes (1a and 1b) and a secondary electrode (1c), and in which an output is obtained from the secondary electrode (1c) by applying an AC power supply to the primary electrodes (1a and 1b); and

a third piezoelectric transformer (3), which comprises primary electrodes (3a and 3b) and a secondary electrode (3c), and in which an output is obtained from the secondary electrode (3c) by applying an AC power supply to the primary electrodes (3a and 3b), being a piezoelectric transformer in which a polarization direction in its primary electrode side is mutually the same as a polarization direction in a primary electrode side of the first piezoelectric transformer (1), and a polarization direction in its secondary electrode side is mutually reverse to a polarization direction of the first piezoelectric transformer (1),

wherein the primary electrodes (1a and 1b) of the first piezoelectric transformer (1) and the primary electrodes (3a and 3b) of the third piezoelectric transformer (3) are connected in series to where an AC power supply is to be applied, and a load (L) is connected between the secondary electrode (1c) of the first piezoelectric transformer (1) and the secondary electrode (3c) of the third piezoelectric transformer (3).

4. A piezoelectric transformer driving method characterized in that as to primary electrodes (1a and 1b) of a first piezoelectric transformer (1) and primary electrodes (2a and 2b) of a second piezoelectric transformer (2), polarization directions are reverse to each other;

as to a secondary electrode (1c) of the first piezoelectric transformer (1) and a secondary electrode (2c) of the second piezoelectric transformer (2), polarization directions are same with each other;

one of the primary electrodes (1b) of the first piezoelectric transformer (1) and one of the primary electrodes (2a) of the second piezoelectric transformer (2) are connected, so that the first piezoelectric transformer (1) and the second piezoelectric transformer (2) are connected in series to an AC power supply (E);

a load (L) is connected between the secondary electrode (1c) of the first piezoelectric transformer (1) and the secondary electrode (2c) of the second piezoelectric transformer (2); and

an AC voltage is applied between the primary electrodes (1a and 2b) of the first and second piezoelectric transformers (1 and 2) connected in series, to drive the piezoelectric transformers.

5. A piezoelectric transformer driving method characterized in that as to primary electrodes (1a and 1b) of a first piezoelectric transformer (1) and primary electrodes (3a and 3b) of a third piezoelectric transformer (3), polarization directions are same with each other;

as to a secondary electrode (1c) of the first piezoelectric transformer (1) and a secondary electrode (3c) of the third piezoelectric transformer (3), polarization directions are reverse to each other;

one of the primary electrodes (1b) of the first piezoelectric transformer (1) and one of the primary electrodes (3a) of the third piezoelectric transformer (3) are connected, so that the first piezoelectric transformer (1) and the third piezoelectric transformer (3) are connected in series to an AC power supply (E);

a load (L) is connected between the secondary electrode (1c) of the first piezoelectric transformer (1) and the secondary electrode (3c) of the third piezoelectric transformer (3); and

an AC voltage is applied between the primary electrodes (1a and 3b) of the first and third piezoelectric transformers (1 and 3) connected in series, to drive the piezoelectric transformers.